

## ABSTRACT

2 For continuous high temperature operation over a service life in excess of twenty  
3 years, a flexible pipe joint includes various features that tend to reduce the temperature of  
4 the load-bearing flex element or reduce strain in the warmer elastomeric layers of the flex  
5 element. These features include a heat shield of low heat conductivity material integrated  
6 into the inner profile of the pipe extension and interposed between the central bore of the  
7 pipe joint and the flex element, low heat conductivity metal alloy components between  
8 the hot production fluid and the flex element, high temperature resistant elastomer at least  
9 in the warmest inner elastomer layer of the flex element, and a flex element constructed  
10 to shift strain from the warmer inner elastomer layers to the colder outer elastomer layers  
11 by providing greater shear area, different layer thickness, and /or higher elastic modulus  
12 elastomer for the warmer inner elastomer layers.